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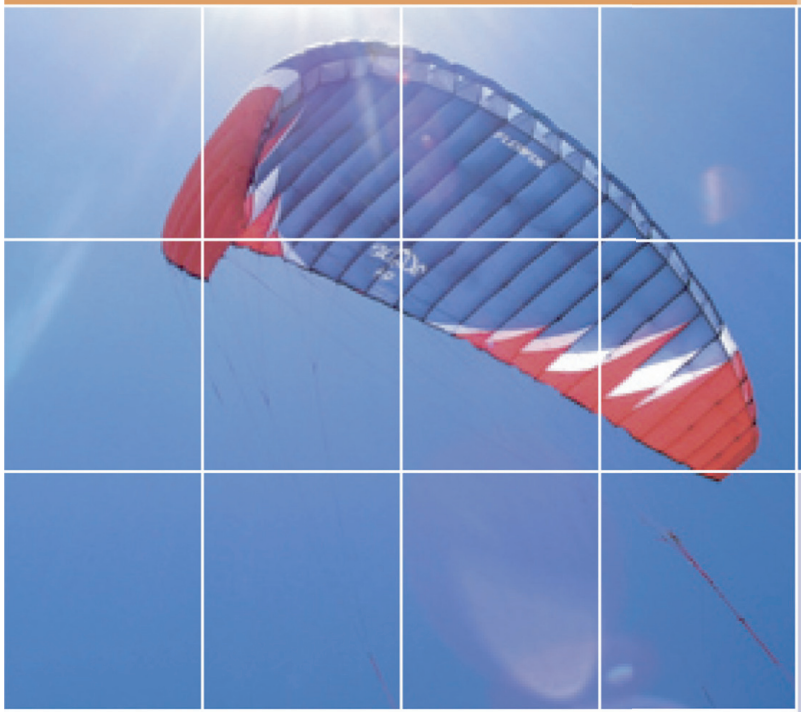

ProofMaster Calibrator v3 User Guide

Win

Mac Universal

The all-in-one software solution suite for color accurate digital proofing, printing and cutting

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ProofMaster 3.0
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Chapter 1

Chapter 1: Calibrating printers

Topics

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1.1 Creating a printer profile for photo printing, color proofing and 1-bit proofing queues 14

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Printer profiles

About printer profiles

ProofMaster controls the output of inkjet printers through the use of printer profiles. Printer profiles optimize output for printing and proofing applications by:

- Maximizing the color accuracy and quality of printed output
- Minimizing consumed quantities, and costs, of ink

A printer profile targets a highly specific combination of driver settings for a printer model (the "printer setup") and media. Each printer profile bundles interdependent information into a neat package. Bundled information includes:

- Printer model-specific driver settings
- Compensation data for ink limits and linearization
- A custom-generated ICC profile

Printer profiles and ProofMaster queues

Each ProofMaster queue uses one printer profile. Many queues can use the same profile. PerfectProof provides a library of printer profiles that target standard printer setup/media combinations.

You can find existing printer profiles in:

- The **ProofMaster** library of printer profiles, which is distributed on CD, and updated in the Support area of www.proofmaster.net.
- The `ProofMaster 3/Calibration/` folder on your computer, which can contain standard or user-defined printer profiles.

See also:

- Creating and configuring ProofMaster queues > Output in the ProofMaster RIP User Guide

About calibration

Using **ProofMaster Calibrator**, you can create and maintain custom printer profiles that target user-defined printer setup/media combinations. If you do so, you will need to calibrate your printer. Calibration comprises the following major steps:

1. The calibration process proper describes unmanaged and managed behaviors of the target printer setup/media combination by:
   - Measuring unmanaged output, to capture nonlinearized results.
   - Modeling ink limits and linearization, to optimize managed output.
2. The characterization process generates a custom ICC profile by:
   - Measuring managed output, to capture linearized results.
   - Generating and recording lookup data required for color conversion.

1.1 Creating a printer profile for photo printing, color proofing and 1-bit proofing queues

Process

The process of creating a printer profile for photo printing, color proofing and 1-bit proofing queues goes as follows:

Calibration

1. Preparing the printer, media and spectrophotometer
2. Specifying the printer profile name and info
3. Printer linearization
4. Color gamut of the printer: selecting a printer gamut optimization method
5. Color gamut of the printer: adjusting ink limits (expert calibration only)
6. Color gamut of the printer: adjusting ink mixing curves (expert calibration only)

Characterization

1. Ink bleeding
2. Color engine
3. Finishing Calibration

See also:

- Creating a printer profile for screen printing queues on page 34

Preparing the printer, media and spectrophotometer

Preparatory steps

1 Prepare the following items:
- Printer, of the target model, and connected to the **ProofMaster** computer
- Media, of the target type
- Spectrophotometer, of a supported model
- Third-party ICC profiling software (Optional)

ProofMaster displays Lab values, but actually uses spectral data to perform linearization. You must use a spectrophotometer to input spectral measurements of linearization targets. Colorimeters do not provide spectral data.

On Windows PCs, driver software for the spectrophotometer must be installed on the computer to which the printer is connected.

ICC profile generation by **ProofMaster** is a feature of the Advanced Color option.

2 Turn on the target printer and perform a nozzle check.

3 Log on with an administrator account to the ProofMaster computer.

4 Start **ProofMaster RIP**.

5 Set up the spectrophotometer:
- Configure the spectrophotometer for use by **ProofMaster**, if necessary.
- Calibrate the spectrophotometer. (Optional)

See also:

- Setting up the spectrophotometer in the ProofMaster RIP User Guide

Specifying the printer profile name and info

To define the printer profile

1 Do one of the following:

- Start **ProofMaster Calibrator**, select a queue and click **Create printer profile**.
- If you're in ProofMaster RIP, select a queue and click the **Go to Calibrator** button ( ) in the main printer window.

Printers under calibration—and affected queues—can remain in use during the calibration process.

Calibration respects all driver settings of the selected queue, and uses them for profiling. It does not override or allow you to modify any driver settings.

However, calibration overrides all queue settings relating to color management. Affected items include:

- All settings on the **Input** tab
- Reference profile
- Solid black option
- Paper color simulation option
- Printer profile, if not already set to <none >
- Color edits

2 Enter a unique, descriptive file name for the new printer profile.

The default name includes the date and printer type. PerfectProof recommends also including printer model and paper type, and using underscore characters (_) instead of spaces to separate elements of the name. **ProofMaster** adds the "desktop fingerprint" extension (.dfp) to the file name.

3 If necessary, provide a more detailed description of the printer profile in the text box under the name of the profile.

For example, you may wish to enter record details of the target media.

4 Select **Typical** or **Expert** calibration.

Expert calibration allows you to perform the following additional tasks:

- Optimizing the printer gamut by adjusting individual ink channels
- Modifying mixtures of light and solid inks by adjusting mixing curves for individual ink channels

5 Click **Next**.

See also:

- Printer linearization on page 18
- Color gamut of the printer: adjusting ink limits (expert calibration only) on page 23
- Color gamut of the printer: adjusting ink mixing curves (expert calibration only) on page 25

Printer linearization

Previous steps

Make sure you have completed the previous steps:

1 Specifying the printer profile name and info, see page 16

Measuring the linearization chart

Measure the nonlinearized behavior of the target printer with the selected media. Proceed as follows:

1 Load media in the printer.

2 Click **Print** to produce the linearization target.

ProofMaster starts a print job named `Linear`. The resulting linearization target contains one 18-patch step wedge for each channel/print head.

3 Allow at least 15-30 minutes for the linearization target to dry unless the chart is obviously too wet.

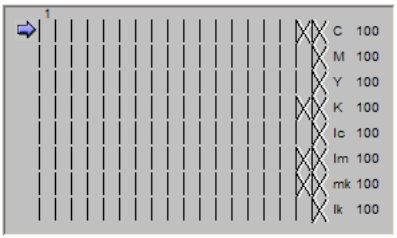
4 Check the linearization target and make sure that it does not contain any patches which are:

- Too wet to measure
- Dry, but too thick (too wet on application)
- Non-uniform in gloss
- Mottled
- Sticky
- Swollen

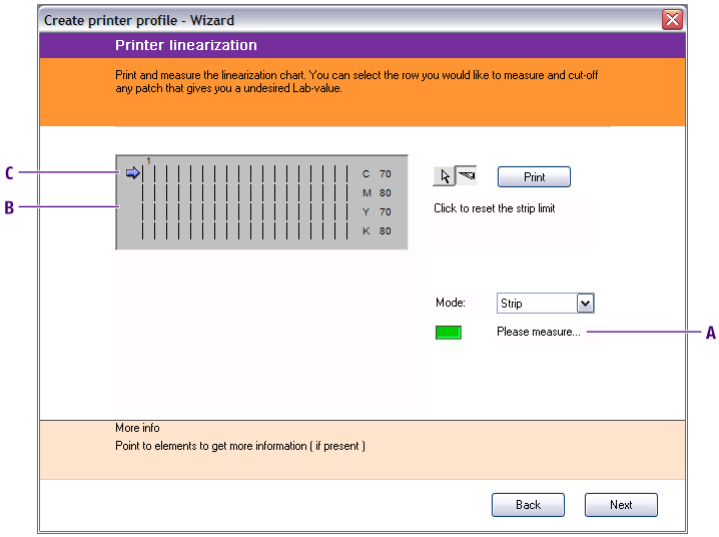
If the target shows any of these above-mentioned symptoms, you will have to cut off patches and reprint it to be able to take accurate measurements. You are most likely to observe these symptoms when printing on plastic media or with ultraviolet-resistant inks, but they can also occur in other situations.

5 If necessary, use the cutter tool ( ) and click the patches which are too wet or too solid.

ProofMaster marks patches selected for cropping with an **X**, and does not allow you to skip over adjacent patches.



6 Measure the dry linearization target with the spectrophotometer.

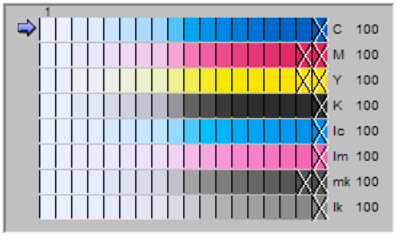


A. Please Measure indicates that **ProofMaster** is waiting for you to measure the next step wedge. This will change into **Loading** when ProofMaster is reading the measured data. Do not go on until **Please Measure** reappears.

B. Before you start measuring, the **Printer linearization** window shows the linearization target as gray. Each step wedge transforms into color patches as you measure the printed chart.

C. The arrow indicates which step wedge to read next. If it is necessary to reread a row (for example, because you read the wrong row, or the meter was tilted), use the arrow to reset focus to the beginning of the target row.

7 If necessary, and if you are an expert user, use the cutter tool ( ) and click the patches which have an undesired Lab value. Print and remeasure the target.



8 Click **Next**.

See also:

- Color gamut of the printer: selecting a printer gamut optimization method on page 21
- Relinearizing the printer profile on page 37

Color gamut of the printer: selecting a printer gamut optimization method

Previous steps

Make sure you have completed the previous steps:

1 Specifying the printer profile name and info, see page 16

2 Printer linearization, see page 18

Defining the gamut of the target printer

Define the gamut that you want the target printer to use for the target media. Proceed as follows:

1 Select one of the following options:

Option	Meaning
Maximum gamut	Maximizes the printer gamut by optimizing the amounts of inks used. This option is generally appropriate for photo printing queues.
Reference profile	Matches the color space of the printer as closely as possible to that of the chosen reference profile, by reduction. This option is generally appropriate for proofing queues. Select the target reference profile from the list of available profiles.
Gray balance clipping	This option is appropriate for some solvent printers or if the other options do not produce satisfactory results.

You may select a CMYK reference profile for a photo printing queue.

ProofMaster allows you to set up a reference profile that is incompatible with the target printer setup/media combination, but warns you of incompatibility when you advance to the next step in the calibration process.

The calibration process *never* modifies a reference profile, which represents a standard.

The reference profile is not embedded in the printer profile.

2 Click **Next**.

See also:

- Color gamut of the printer: adjusting ink limits (expert calibration only) on page 23
- Color gamut of the printer: adjusting ink mixing curves (expert calibration only) on page 25
- Ink bleeding on page 27

Color gamut of the printer: adjusting ink limits (expert calibration only)

Previous steps

Make sure you have completed the previous steps:

1. Specifying the printer profile name and info, see page 16
2. Printer linearization, see page 18
3. Color gamut of the printer: selecting a printer gamut optimization method, see page 21

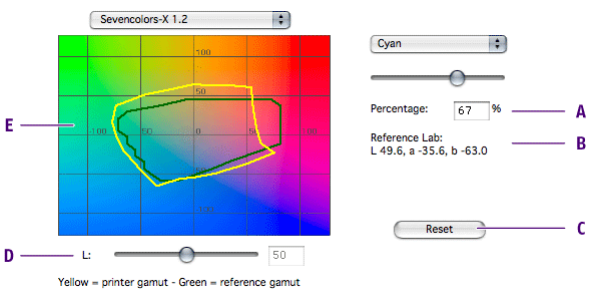
About adjusting ink limits

Inkjet printers sometimes cannot constrain output as required by the gamut of reference profiles selected for calibration. You can manually increase or decrease the channel-specific ink limits that **ProofMaster** sets for a printer profile on the basis of the spectral measurements of the linearization strip.

To adjust ink limits

Proceed as follows:

1. Select an ink channel from the list.
2. Adjust the ink limit by moving the slider.
3. Observe the dynamic effects of the change.



A. Percentage shows the channel capacity utilized at the current setting (position of the slider).

B. Reference Lab shows the Lab value of the selected channel at the current setting of the slider.

C. You can click **Reset** to revert to the ink limits set for all channels by **ProofMaster**.

D. The **L** slider shows a cross section of the printer and reference gamuts at the requested L value.

E. The chart shows the effects of the current setting on the printer gamut, with the yellow and green outlines delimiting the printer and reference gamuts respectively.

4. Repeat steps 1 through 3 for each of the ink channels.

See also:

- Color gamut of the printer: adjusting ink mixing curves (expert calibration only) on page 25

Color gamut of the printer: adjusting ink mixing curves (expert calibration only)

Previous steps

Make sure you have completed the previous steps:

1. Specifying the printer profile name and info, see page 16
2. Printer linearization, see page 18
3. Color gamut of the printer: selecting a printer gamut optimization method, see page 21
4. Color gamut of the printer: adjusting ink limits (expert calibration only), see page 23

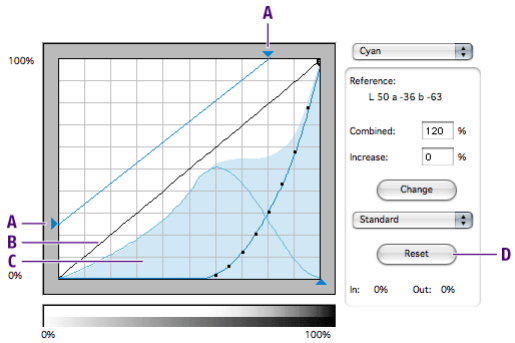
About adjusting ink mixing curves

Ink mixing curves can sometimes direct printers to lay down more ink than target media can absorb for sufficient drying. You can reduce ink output by manually adjusting the channel-specific ink mixing curves that **ProofMaster** sets for a printer profile. For example, you can correct over-inking by adjusting the mixtures of light and dark inks applied by individual channels to low-quality paper or plastic media.

To adjust ink mixing curves

Proceed as follows:

1. Select an ink channel from the list.
2. Adjust the ink mixing curve in terms of light and solid ink utilization by moving either handle of the ink-mixing lever (**A**).



A. The ink-mixing lever functions as a "virtual border" that ink-mixing curves cannot cross. Pulling the lever down changes the mixture such that less light ink, and more solid ink, is used.

B. The black diagonal line (**B**) models the linearity of the ink channel given the proposed settings. Pulling the ink-mixing lever "too hard" can result in a non-linear curve that compromises the quality of printer output.

C. The colored background (**C**) models ink laydown given the proposed settings.

D. You can click **Reset** to undo manual edits performed on the curves themselves. This action does *not* undo manipulation by the ink-mixing lever.

3 Repeat steps 1 through 2 for each ink channel.

See also:

- Ink bleeding on page 27

Ink bleeding

Previous steps

Make sure you have completed the previous steps:

1. Specifying the printer profile name and info, see page 16
2. Printer linearization, see page 18
3. Color gamut of the printer: selecting a printer gamut optimization method, see page 21
4. Color gamut of the printer: adjusting ink limits (expert calibration only), see page 23
5. Color gamut of the printer: adjusting ink mixing curves (expert calibration only), see page 25

Evaluating Managed Output

Evaluate the effects of the proposed ink limits and linearization on the behavior of the target printer setup/media combination.

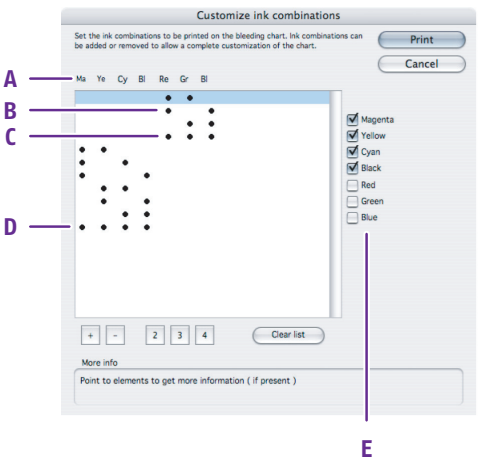
The ink bleeding chart demonstrates ink usage as limited by the previous steps in this procedure. Visual examination is the basis for further limiting ink usage.

Proceed as follows:

1. If necessary, click **Customize** to customize the ink bleeding target.

   You may wish to do customize ink combinations for proofers which can print more than the four process colors, for example a seven-color proofer, because you will otherwise have a (too) large number of color combinations.

2. Set the ink combinations to be printed on the bleeding chart.



A. Ink names

B. Two-ink combination of red and blue

C. Three-ink combination of red, green and blue

D. Four ink combination of CMYK.

E. Select the inks and click the **+**, **2**, **3** and **4** buttons to add ink combinations

3 Select media size and source, if not already set up on the **Layout** tab of the target queue in ProofMaster RIP.

4 Load target media in the printer.

5 Click **Print** to produce the ink bleeding chart.

ProofMaster starts a print job named `Inkbleeding`.

6 Examine the ink bleeding chart immediately, without waiting for it to dry.

Study the patches from top to bottom, right to left (more ink to less ink). Paying particular attention to the diagonal white lines that bisect each patch, identify physical problems, such as:

- Obviously wet
- Dry, but too thick (too wet on application)
- Non-uniform in gloss
- Mottled
- Sticky
- Swollen

7 Identify the first patches at which the above problems do not occur anymore.

8 Enter the values of these patches for each of the ink limits.

These data points are used for generating an ICC target.

9 Click **Next**.

See also:

- Color engine on page 29

Color engine

Previous steps

Make sure you have completed the previous steps:

1. Specifying the printer profile name and info, see page 16
2. Printer linearization, see page 18
3. Color gamut of the printer: selecting a printer gamut optimization method, see page 21
4. Ink bleeding, see page 27

Characterizing Managed Output

Set up generation of the ICC target and custom ICC profile to embed in the printer profile. **ProofMaster** complies with the Committee for Graphic Arts Technologies Standards (CGATS) standards for data interchange format, and is compatible with compliant applications such as GretagMacBeth ProfileMaker and Color Solutions BasicColor.

Proceed as follows:

1. Select the preferred method for generating the ICC profile. Options include:

Option	Generation Methods	
	ICC Target	ICC Profile
ProofMaster Color Engine, see page 30	**ProofMaster**-internal color engine	
Combination of color engines, see page 31	**ProofMaster**-internal color engine	Any third-party, CGATS-compliant application
Third-party color engine, see page 31	Existing third-party ICC target	Any third-party application

The **ProofMaster Color Engine** method is available if the Advanced Color option is licensed. In this case, you do not need any third-party applications.

2. Click **Next**.

ProofMaster Color Engine

Generate the ICC target for the compensated printer setup/media combination. Proceed as follows:

1. Load media in the printer.
2. Select the number of patches required in the ICC target.

PerfectProof recommends 3000 patches as the upper limit.

3. Click **Generate** to produce a unique ICC target.

The **Save** and **Load** buttons support access to previously generated ICC targets.

4. Click **Print** to produce the ICC target.

   ProofMaster starts a print job named **Target**.

5. Click **Next** to advance to the **Measure color chart** window.
6. Using a spectrophotometer, measure the color patches in the ICC target.

Do not quit ProofMaster during the process of generating and calculating the ICC profile. Instead, minimize the ProofMaster RIP and Calibrator windows.

7. Specify the **Black start** value:
   - If your printer has light black ink, you can leave the **Black start** value set at 0.
   - If your printer does not have light black ink, it is recommended to set this value between 40 % (for high-resolution printers) and 60 %.
8. Specify the **Max. black** value.
9. Select a color replacement technique:
   - **GCR** (Gray Component Replacement), to replace process colors with black over a greater tonal range
   - **UCR** (Undercolor Removal), to replace process colors with black ink in the shadow areas of an image and in neutral shades

Combination of color engines

Generate the ICC target for the compensated printer setup/media combination. Proceed as follows:

1. Load media in the printer.
2. Select the number of patches required in the ICC target.

PerfectProof recommends 3000 patches as the upper limit.

3. Click **Generate** to produce a unique ICC target.

The **Save** and **Load** buttons support access to previously generated ICC targets.

4. Click **Print** to produce the ICC target.

   ProofMaster starts a print job named **Target**.

5. Click **Next** to advance to the **Measure color chart** window.
6. Using a spectrophotometer, measure the color patches in the ICC target.
7. Click **Export** to export the reference CMYK values and measured data for importing into the CGATS-compliant profiling application.
8. Generate the ICC profile:
   - Through the CGATS-compliant profiling application, load the exported data and generate the ICC profile.
   - Through **ProofMaster**, click **Choose** to import the generated ICC profile.

Do not quit ProofMaster during the process of generating and calculating the ICC profile. Instead, minimize the ProofMaster RIP and Calibrator windows.

Third-party color engine

Generate the ICC target for the compensated printer setup/media combination. Proceed as follows:

1. From **ProofMaster**, obtain the ink limit that the third-party application of your choice should use for generating the ICC target.
2. Through the third-party application, generate the ICC target using the ink limit.
3. Load media in the printer.
4. In ProofMaster Calibrator, click **Choose** to import and print the ICC target.
5. Browse to and select each of the files that comprises the ICC target.

6 Through the third-party application, use the spectrophotometer to measure the color patches in the ICC target.

7 Generate the ICC profile:

- Through the third-party application of choice, generate the profile.
- Through **ProofMaster**, import the generated profile.

Do not quit ProofMaster during the process of generating and calculating the ICC profile. Instead, minimize the ProofMaster RIP and Calibrator windows.

Finishing Calibration

Previous steps

Make sure you have completed the previous steps:

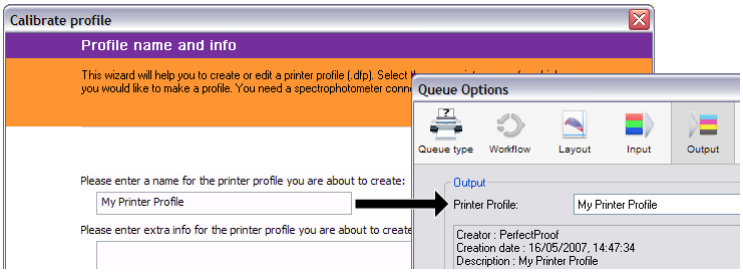
1. Specifying the printer profile name and info, see page 16
2. Printer linearization, see page 18
3. Color gamut of the printer: selecting a printer gamut optimization method, see page 21
4. Ink bleeding, see page 27
5. Color engine, see page 29

To finish calibration

Proceed as follows:

1. Click **Finish** to save the desktop fingerprint (*.dfp) file.

ProofMaster automatically sets this printer profile for your queue.



If necessary, you can now switch to ProofMaster RIP and test your queue to see whether the printer profile produces satisfactory results.

The output of a color proofing queue can be verified if the ProofMaster Certify! option is licensed.

See also:

- Creating and configuring ProofMaster queues > Output in the ProofMaster RIP User Guide

1.2 Creating a printer profile for screen printing queues

Process

The process of creating a printer profile for screen printing queues goes as follows:

1. Preparing a linearization target, using ProofMaster RIP
2. Creating the printer profile, using ProofMaster Calibrator

Preparing a linearization target

ProofMaster provides a standard halftone step wedge whose percentages are read by the densitometer. The name of this step wedge is `Silk calibration wedge.pdf` and you can find it in the `ProofMaster 3/Utilities` folder.

Proceed as follows to prepare the linearization target:

1. Prepare the following items:
   - Printer, of the target model, and connected to the **ProofMaster** computer
   - Film media, of the target type
   - Densitometer
2. Turn on the target printer, load film and perform a nozzle check.
3. Log in with an administrator account to the ProofMaster computer.
4. Start ProofMaster RIP.
5. Double-click the screen printing queue in the **Output to** pane.
6. Click the **Input** and **Output** tabs and make sure that all the profiles are set to <none>.
7. Click the **Screening** tab and make sure that the halftone angle, frequency and dot shape are set correctly.
8. Click **OK** to close the **Queue Options** dialog box.
9. In the main printer window, click the **Add Job** button ( ).
10. Locate and select `ProofMaster 3/Utilities/Silk calibration wedge.pdf`.
11. Select the appropriate print options and click **OK**.

See also:

In the ProofMaster RIP User Guide:

- Creating and configuring ProofMaster queues > Input
- Creating and configuring ProofMaster queues > Output
- Creating and configuring ProofMaster queues > Screening

Creating the printer profile

1. In ProofMaster RIP, select the queue that you just configured for creating the profile and where you printed the target on.
2. Click the **Go to Calibrator** button ( ) in the main printer window.
3. Enter a unique, descriptive file name for the new printer profile.

The default name includes the date and printer type. PerfectProof recommends also including printer model and paper type, and using underscore characters (_) instead of spaces to separate elements of the name. **ProofMaster** adds the "desktop fingerprint" extension (.dfp) to the file name.

4. If necessary, provide a more detailed description of the printer profile in the text box under the name of the profile.

For example, you may wish to enter record details of the target media.

5. Click **Next** to advance to the **Ink mixing** window.

To create a printer profile for screening, you must generate a compensation curve for the dot gain that occurs when printing halftone dots on film. The compensation curve ensures that output managed by the queue is linearized.

6. Measure the patches using a densitometer.
7. Calculate the values to enter using this formula:

Compensation = StepPercentage * (StepPercentage/Measurement)

For example, if the densitometer measures 61% on the 50% patch, the calculation is 50*50/61 = 40.98, which rounds off to 41.

8. Enter the result of the calculation in the corresponding box and click **Change**.
9. Click **Next** to advance to the **Build printer profile with external ICC** window.

10 If necessary, click **Choose** to import an existing ICC profile, for a press or other CMYK target, into **ProofMaster**.

The selected ICC profile is a CMYK profile that:

- Is chosen for embedding in the printer profile set on the **Output** tab of the **Queue Options** dialog box.
- Serves as a "separation" profile.

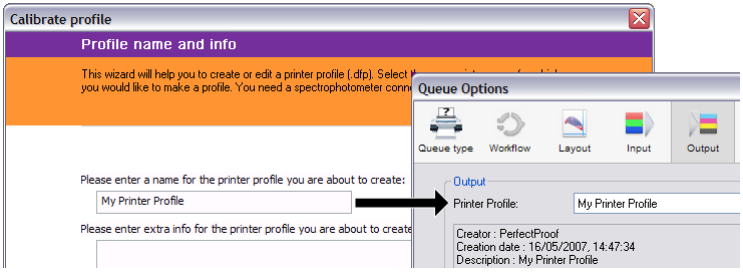
ProofMaster produces rasterized CMYK output from RGB images by converting incoming images' colors:

- From those in the profiles set on the **Input** tab.
- To those in the embedded separation profile.

Do not quit **ProofMaster** during the process of generating and calculating the ICC profile. Instead, minimize the **ProofMaster** RIP and Calibrator windows.

11 Click **Finish** to save the desktop fingerprint (*.dfp) file.

ProofMaster automatically sets this printer profile for your queue.



If necessary, you can now switch to ProofMaster RIP and select input profiles for your screen printing queue. This is not necessary, however, for applications that rasterize only CMYK files.

See also:

- Creating and configuring ProofMaster queues > Input and Output in the ProofMaster RIP User Guide

1.3 Relinearizing the printer profile

What does relinearizing mean?

Relinearization is the process of adjusting the existing calibration of the printer to the color shift that this printer has gone through. This color shift can have various reasons:

- Changing environmental conditions
- Degrading print heads
- Differences in media quality

When to relinearize?

You need to relinearize the printer profile in the following cases:

- When you notice a color shift in your prints
- When the printer shifts in such a way that the prints are out of tolerance of the ISO specifications

To relinearize the printer profile

Proceed as follows:

1. If necessary, click the **Printer** tab.
2. Select the queue which contains the printer profile which needs relinearizing.
3. Click **Relinearize profile > Edit**.
4. Click **Next** to advance to the **Printer linearization** window.
5. Print and measure the linearization target.
6. Click **Finish**.
7. Check your proofs by means of certified jobs. Recalibrate your printer if the results of the relinearization are not satisfactory.

See also:

- Calibration on page 14
- Printer linearization on page 18
- Certifying a job (Certify! option only) in the ProofMaster RIP User Guide

1.4 Regenerating the ICC profile

About regenerating ICC profiles

You can regenerate the ICC profile if you wish to recalculate it with different settings without having to go through the complete calibration process. You may wish to do this to test which ICC profile produces the best results.

To regenerate the ICC profile

Proceed as follows:

1. If necessary, click the **Printer** tab.
2. Select the queue which contains the ICC profile which needs regenerating.
3. Click **Regenerate ICC profile** > **Edit**.
4. Follow the instructions in the **Calibrate profile** wizard to regenerate the ICC profile.

See also:

- Color gamut of the printer: selecting a printer gamut optimization method on page 21
- Color gamut of the printer: adjusting ink limits (expert calibration only) on page 23
- Color gamut of the printer: adjusting ink mixing curves (expert calibration only) on page 25
- Ink bleeding on page 27
- Color engine on page 29

1.5 Editing the dot gain or gray correction curve

About dot gain correction

You can compensate for dot gain curves in the imagesetter or platesetter RIP. You can also edit the dot gain curve if you want to make visual color adjustments.

The dot gain correction curve is saved in the ICC profile.

See also:

- "Curves" in the Adobe Photoshop Help.

About gray balance correction

You can use gray balance correction to visually correct the gray balance.

To edit the dot gain or gray correction curve

Proceed as follows:

1. If necessary, click the **Printer** tab.
2. Select the queue of which you wish to edit the dot gain or gray correction curve.
3. Do one of the following:
   - Click **Dot Gain correction > Edit**.
   - Click **Gray correction > Edit**.
4. Select an ink channel.
5. You can now do the following:
   - Select the respective curve and drag it to the desired position

   and/or
   - Click on a point in the curve and fill in the input and output percentages of this point.
6. Repeat steps 4 through 5 for each of the ink channels.
7. Click **Save**.

You can always click **Reset** to revert to the original position of the curves, even after you have saved the curves.

8 If necessary, change the name of the printer profile.

You may wish to change the name of the printer profile to indicate that dot gain compensation or gray correction has been used. If you do so, ProofMaster will automatically use this new printer profile for the queue you selected in step 2.

9 Click **OK**.

See also:

- Creating and configuring ProofMaster queues > Output in the ProofMaster RIP User Guide

Chapter 2

Chapter 2:
Advanced applications

Topics

In this chapter:

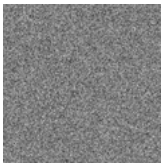
- Selecting and editing substrates (Advanced Color option only) 44
- Editing dot gain correction and break-off percentage (Advanced Color option only) 46
- Using a DeviceLink profile 48
- Editing the paper color simulation (white point correction) 51
- Editing the spot color list of a printer profile 53

Selecting and editing substrates (Advanced Color option only)

About substrates

If you have licensed the **Advanced Color** option, you can set up your ProofMaster queue to simulate substrates. The process goes as follows:

1. You create an image of your substrate, for example by scanning it.



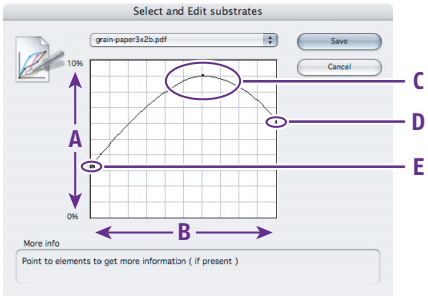
2. You select the substrate in ProofMaster Calibrator and edit it.
3. You select the option **Substrate simulation** for your queue.

To select and edit substrates

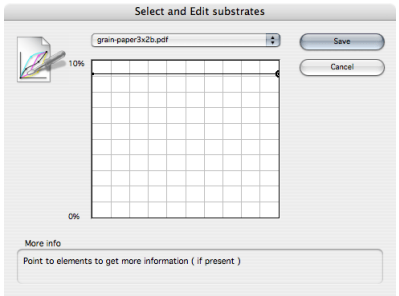
Proceed as follows:

1. Create a grayscale image of your substrate and save the file as PDF in the `ProofMaster 3/Substrates` folder.
2. In ProofMaster Calibrator, click the **Reference** tab.
3. If necessary, select the queue for which you want to select and edit substrates.
4. Click **Select and edit substrates > Edit**.
5. Select your substrate from the list.

6 Adjust the curve, as shown in the examples below



Typical curve for lower-quality media used in offset and gravure printing:
A. Intensity of the simulation
B. Tonal scale
C. Curve rises to 90 % in the midtones
D. Curve falls to 60 % in the shadows
E. Curve has 30 % effect in the highlights



Typical curve for textile printing: the effect of the textile substrate is equally visible over the entire tonal scale.

7 Click **Save**.

8 Type a name for the changed reference profile and click **OK**.

From now on, this reference profile will be used by your queue.

9 In ProofMaster RIP, double-click the queue, and then click the **Proofing** tab.

Notice that the reference profile is now the one with the information for substrate simulations.

10 Select the option **Substrate simulation** and click **OK**.

Editing dot gain correction and break-off percentage (Advanced Color option only)

About dot gain correction and break-off percentage

For flexography or gravure printing, you can edit the dot gain curves of the reference profile of your queue and/or insert a break in the curve to simulate loss of detail in the printing process, which is typical for these printing techniques.

To edit dot gain correction and break-off percentage

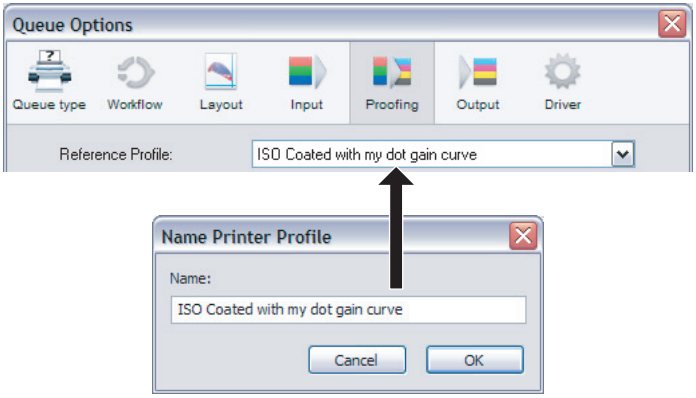
Proceed as follows:

1. In ProofMaster RIP, double-click a queue, then click the **Proofing** tab and check which reference profile this queue uses.

   This reference profile will be replaced by the reference profile with the edited dot gain correction curves.
2. In the ProofMaster Calibrator, click the **Reference** tab.
3. If necessary, select the queue for which you want to edit a dot gain correction curve.
4. Click **Dot Gain correction and % break-off > Edit**.
5. Select the ink channel for which you want to specify dot gain correction.
6. Specify the **Break-off** position and click **Break** to apply it.
7. Do one of the following:
   - Enter the input percentage and measured output percentage in the **In** and **Out** text boxes respectively.
   - Click on the curve to add an adjustment point, and drag the point to the required position. The input and output percentages change correspondingly in the **In** and **Out** text boxes.
8. Repeat steps 5 through 7 for all the ink channels.
9. Click **Save**.
10. Type a name for the changed reference profile and click **OK**.

11 In ProofMaster RIP, double-click the queue, and then click the **Proofing** tab.

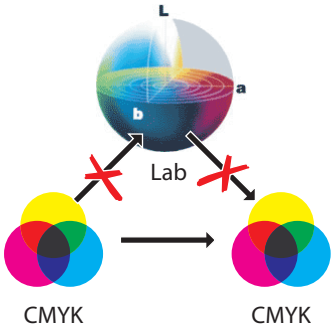
Notice that the reference profile is now the one with the edited dot gain curves.



Using a DeviceLink profile

About DeviceLink profiles

To improve the color accuracy of your proofs, you can create and use a DeviceLink profile. A DeviceLink is a link between the reference profile and the printer profile of your queue. The DeviceLink profile directly transforms color from one color space to another, without using an intermediate, device-independent color space (CIELab).



You can use a DeviceLink profile in the standard version of ProofMaster. To create and tune a DeviceLink profile however, you need to license the **Advanced Color** option.

To create a DeviceLink profile (Advanced Color option only)

Proceed as follows:

1. In ProofMaster RIP, make sure that the queue in which you want to use a DeviceLink has a reference profile and a printer profile. Double-click the queue and check the **Proofing** and **Output** tabs.
2. Click **OK** to close the **Queue Options** dialog box.
3. In ProofMaster Calibrator, click the **DeviceLink** tab.
4. If necessary, select the queue for which you want to create a DeviceLink.
5. Click **Create DeviceLink** > **Create**.
6. Type the name of the DeviceLink and click **Generate**.
7. In ProofMaster RIP, double-click the queue, and then click the **Proofing** tab.

   Notice that the DeviceLink which you just created is now selected for this queue.

To tune a DeviceLink (Advanced Color option only)

Tuning a DeviceLink can improve the delta E values for proofing and can make color reproduction more accurate through an iterative process. However, tuning can only be effective if the following conditions are met:

- The reference profile must be suitable for proofing on the printer with the respective media. If not, the combination of the reference profile with the printer profile may not be optimal.
- The quality of the printer profile must be good enough.

Proceed as follows:

1. Click the **DeviceLink** tab.
2. Click **Tune DeviceLink > Tune**.
3. Click **Print target**.
4. Select the target's position and orientation and click **OK**.
5. Click **Next**.
6. Measure the printed DeviceLink target with a spectrophotometer.
7. Wait until all the rows of patches display the measured data, and then click **Next**.

An overview of all measured patches is displayed, with their respective reference and measured Lab values, and the difference between both as delta E values.

8. Click **Next**.

   A summary of the delta E statistics is displayed:

   - If this is the first proof which you printed and measured, this set of measurements will be called "Measurement0". This is the current status "as is", without any adjustments made.
   - If this is the second proof and measurement, the set of measurements will be called "Measurement1", indicating that these are the first adjustments you have made.

9. You can now do one of the following:

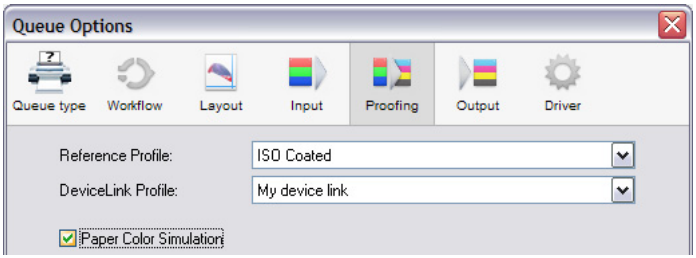
   - If the results are not satisfactory, click **Refine**. The target will automatically be reprinted and you can then measure this refined target again. Repeat this step a number of times, typically three to four times, until the results are satisfactory.

- If the results of a particular set of measurements are satisfactory, select the set in the list and click **Finish**. For example, you may have four sets of measurements, of which the set “Measurement3” had the best results. If so, select “Measurement3” in the list and click **Finish**.

Editing the paper color simulation (white point correction)

About paper color simulation (white point correction)

If you selected the option **Paper Color Simulation** when you configured your queue (**Proofing** tab of the **Queue Options**), you can change the simulation of the paper color in ProofMaster Calibrator. This function changes the white point in the printer profile in accordance with the reference profile.



To edit the paper color simulation (white point correction)

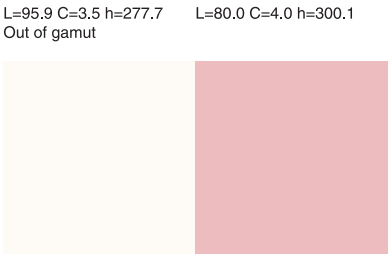
Proceed as follows:

1. In ProofMaster Calibrator, click the **DeviceLink** tab.
2. Select the queue of which you want to change the paper color simulation.

   A reference profile and a printer profile need to be specified for this queue.
3. Fill in the target values (in Lab or LCh) of the simulation of your choice.

   Notice the CMYK values of the inks at the bottom of the **White point correction** dialog box.
4. Click **Print** to print two patches: one with the current values and one with the adjusted values.

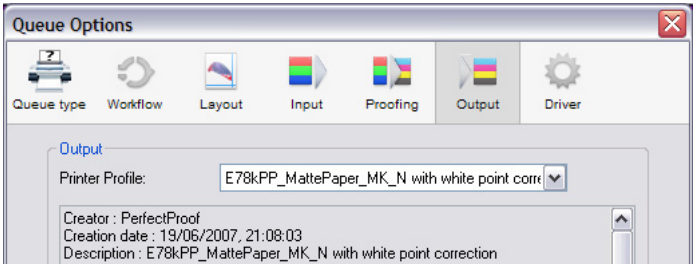
   A job named “paper white target” is added to the queue. If the values you specified are out of the printer’s gamut, it will be indicated on the print.



5 Adjust and print the values until the result is satisfactory.

6 Click **Save** and, if necessary, change the name of the printer profile.

The printer profile you have just saved will automatically be used by the respective queue.



Editing the spot color list of a printer profile

About editing the spot color list of a printer profile

You can add spot colors to a printer profile, and you can do this in various ways:

- You can load spot colors from an existing printer profile or a spot color library.
- You can measure a spot color on a proof and save the measured values.
- You can specify the spot color's values and opacity.

Once you have defined spot colors, you can also tune their visual representation. The spot colors which you add to the printer profile take precedence over any other custom or standard spot color libraries.

See also:

- Spot color handling in the ProofMaster RIP User Guide

To edit the spot color list of a printer profile

Proceed as follows:

1. Click the **Spot Color** tab.
2. Select the queue which has a printer profile of which you want to edit the spot color list.
3. Click **Select and Tune Spot Colors > Edit**.
4. You can now do one of the following:
   - To add spot colors to the printer profile
   - To remove a spot color from the printer profile
   - To edit the properties of a spot color
   - To tune the visual representation of the spot color
   - To load spot colors from an existing printer profile or spot color library

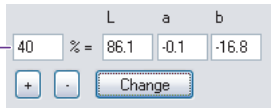
To add spot colors to the printer profile

1. Click the plus button ( ) below the spot color list
2. Type a name for your spot color.

3 Do one of the following:

- To enter the values of your spot color manually, select **CIELab** or **CMYK** values and specify the respective values. Specify the **Opacity** by moving the slider or by entering a value.
- Measure the spot color using a spectrophotometer.

4 If you have purchased and installed the Advanced Color option, you can also add tints of a spot color by specifying a percentage in the **%** box and clicking the plus button (+).



A. Tint of a spot color

5 Click **Change**.

6 Click **OK**.

To remove a spot color from the printer profile

Select a spot color in the list and click the minus button (-).

To edit the properties of a spot color

1 Select a spot color in the list and click **Edit**.

2 You can now the following:

- Change the name of the spot color
- Select **CIELab** or **CMYK** and change the values of the spot color
- Change the **Opacity** of the spot color by moving the slider or by entering a value.

To tune the visual representation of the spot color

1 Select a spot color in the list and click **Tune**.

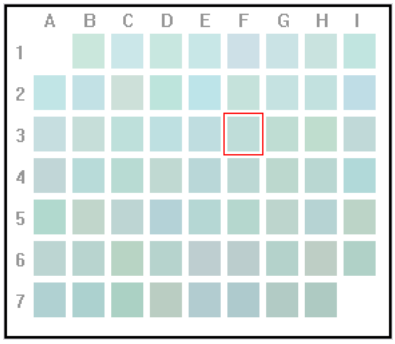
2 If necessary, move the slider from **Fine** to **Coarse** to increase the variations.

3 Click **Print** to print the variations on the selected queue.

A job named "SpotColors" is added to the queue.

4 Check the proof and determine the printed patch which matches your reference spot color best.

5 Indicate this "best match" **Spot Color Tuning** dialog box and click **OK**.



The values of the spot color are automatically adjusted to the values of the patch you selected.

6 Click **OK**.

To load spot colors from an existing printer profile or spot color library

1 Click **Load**.

2 Select a printer profile (*.dfp) or spot color library (*.cxf) and click **Open**.

The ProofMaster folders where you can find printer profiles and spot color libraries are:

- `ProofMaster/Calibration` for printer profiles
- `ProofMaster/Libraries` for spot color libraries

You can also use cxf libraries from other cxf-compatible programs.

3 Click **Done**.

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